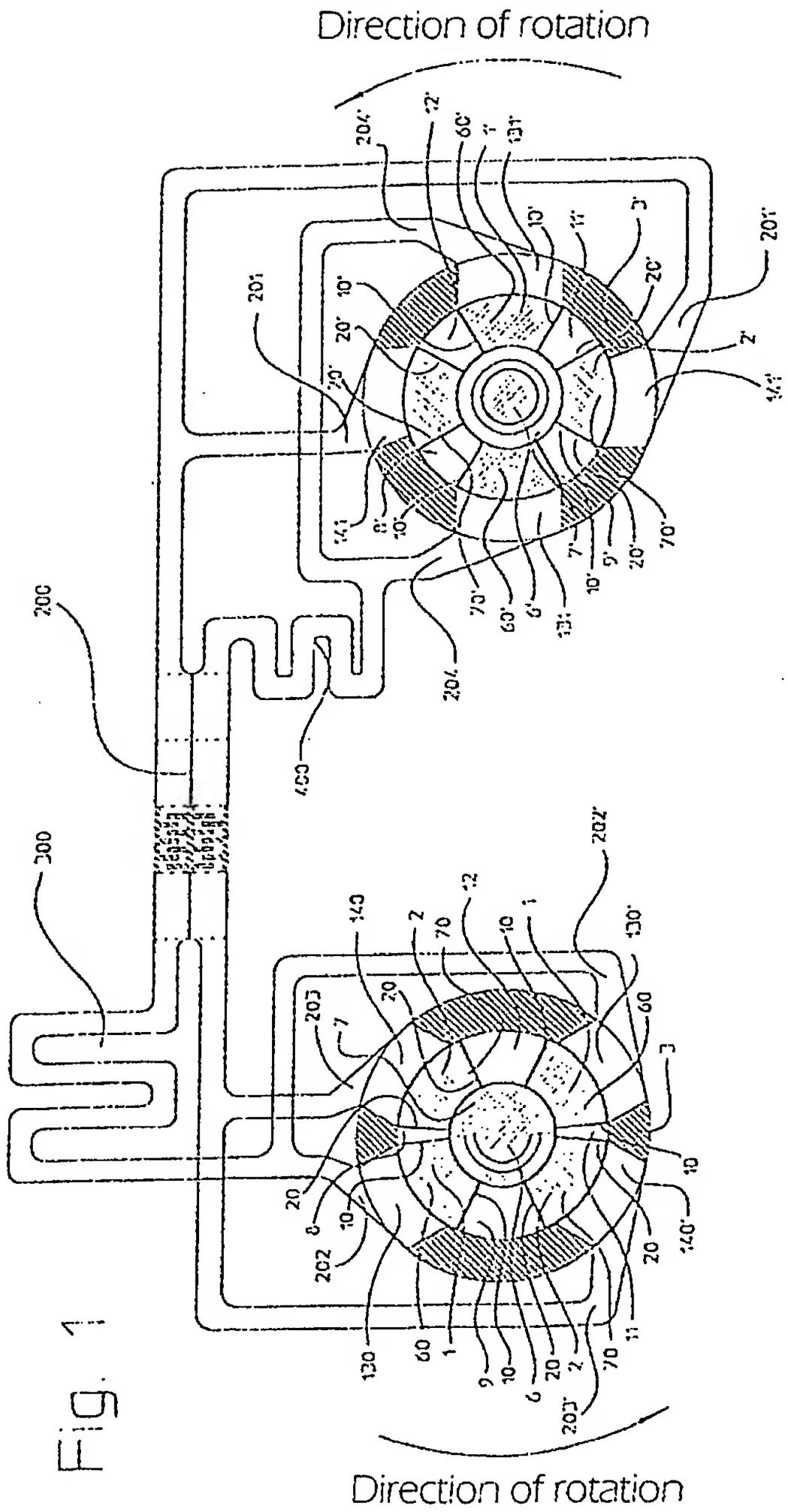


Fig. 1

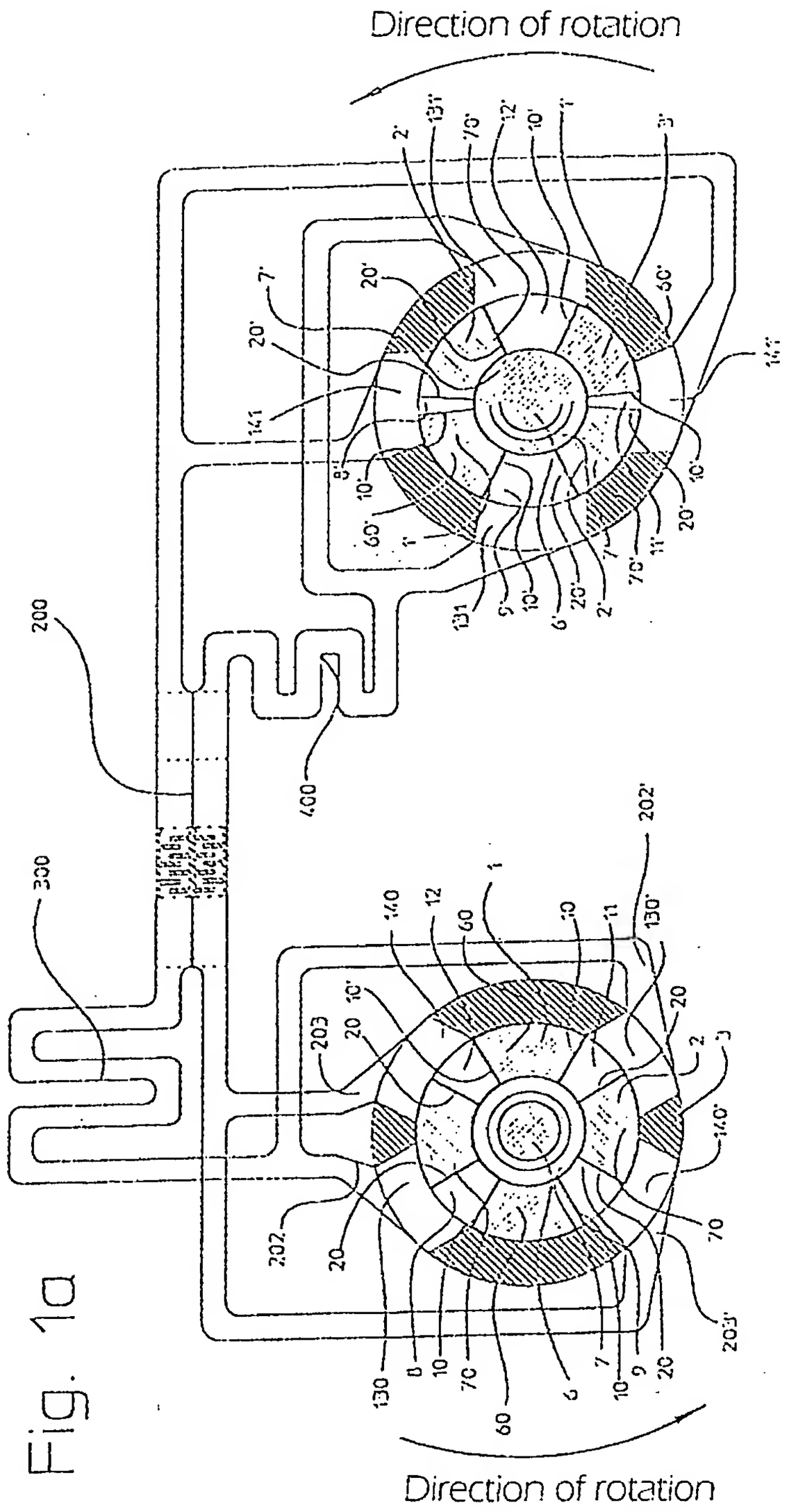
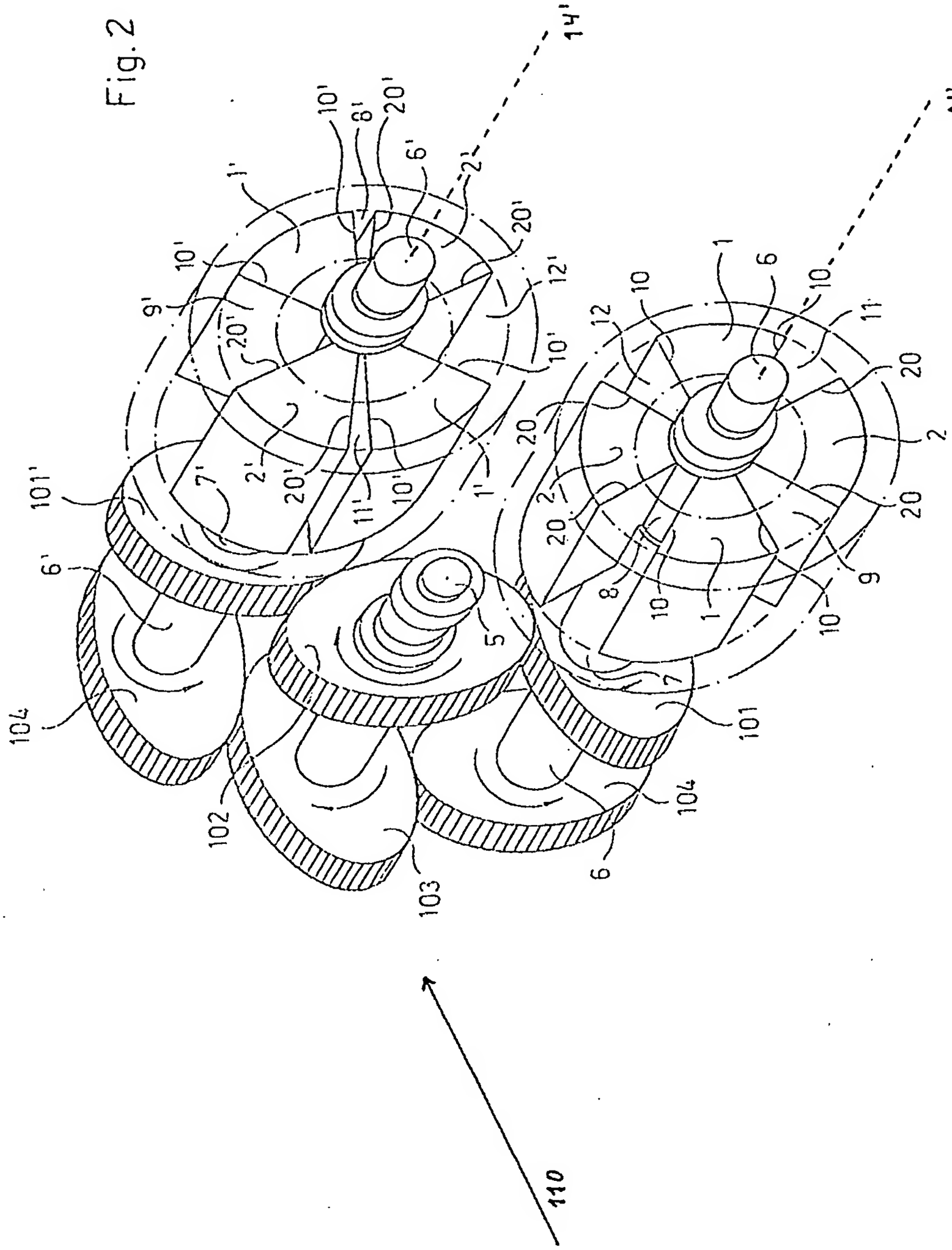

Direction of rotation
2'
13'
15'
12'
10'
1'
3'
20'
7'
20'
20'
141
8'
10'
60'
1'
131
5'
10'
6'
20'
2'
7'
70'
11'
20'
10'
200
400
300
202'
130'
140
12
60
1
10
11
20
10'
203
20
2
3
140'
202
20
70
203'
130
8
10
70
60
6
7
10
9
20
Direction of rotation

Fig. 1a

Fig. 2


14'
10'
8'
20'
6'
2'
1'
20'
10'
9'
20'
12'
10'
7'
2'
20'
11'
10'
1'
101'
6'
104
102
03
5
14
1
6
10
12
10
11
20
2
20
20
2
20
8
10
1
9
10
10
7
101
104
6
110

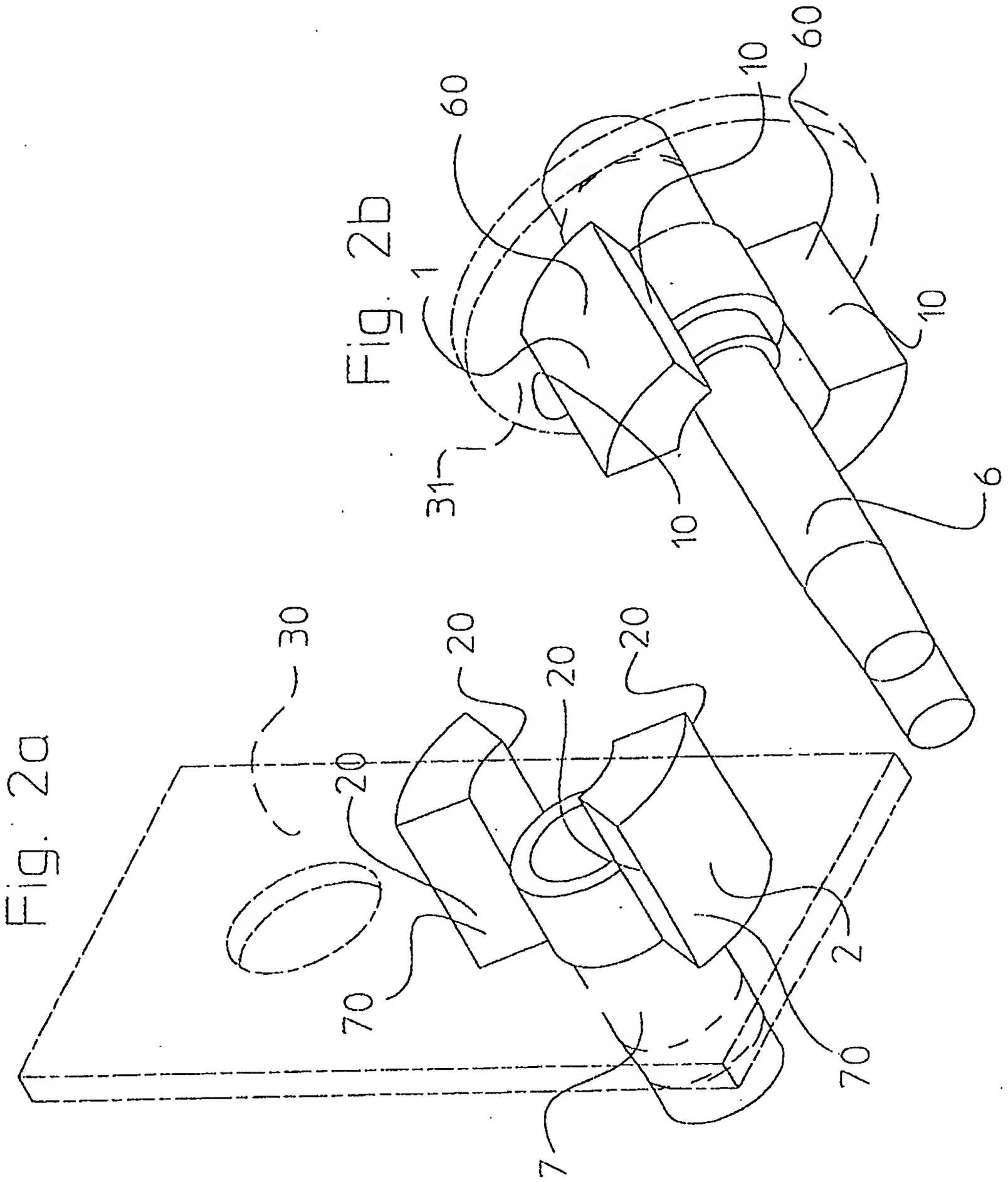


Fig. 2b

Fig. 2a

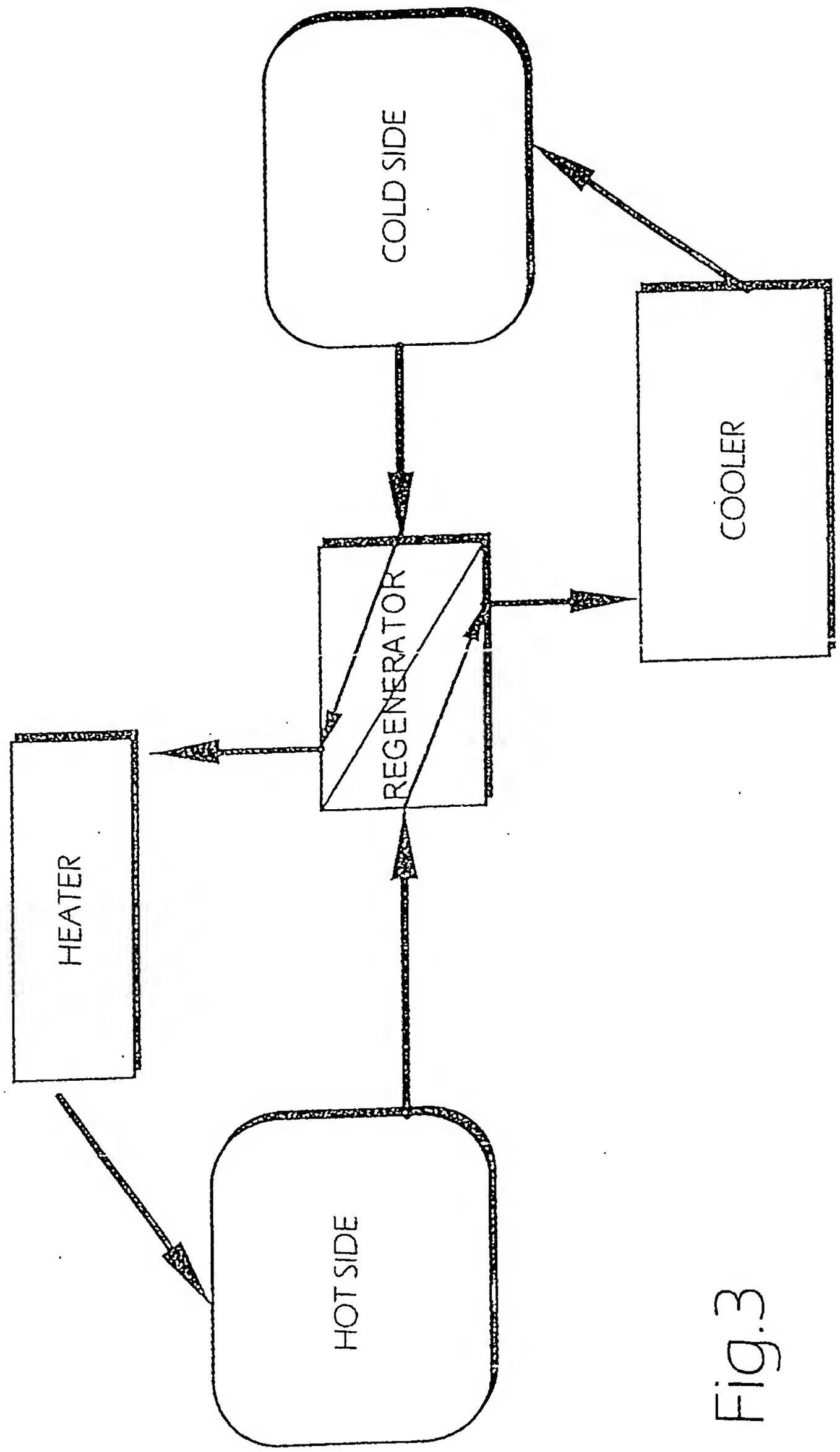


Fig.3

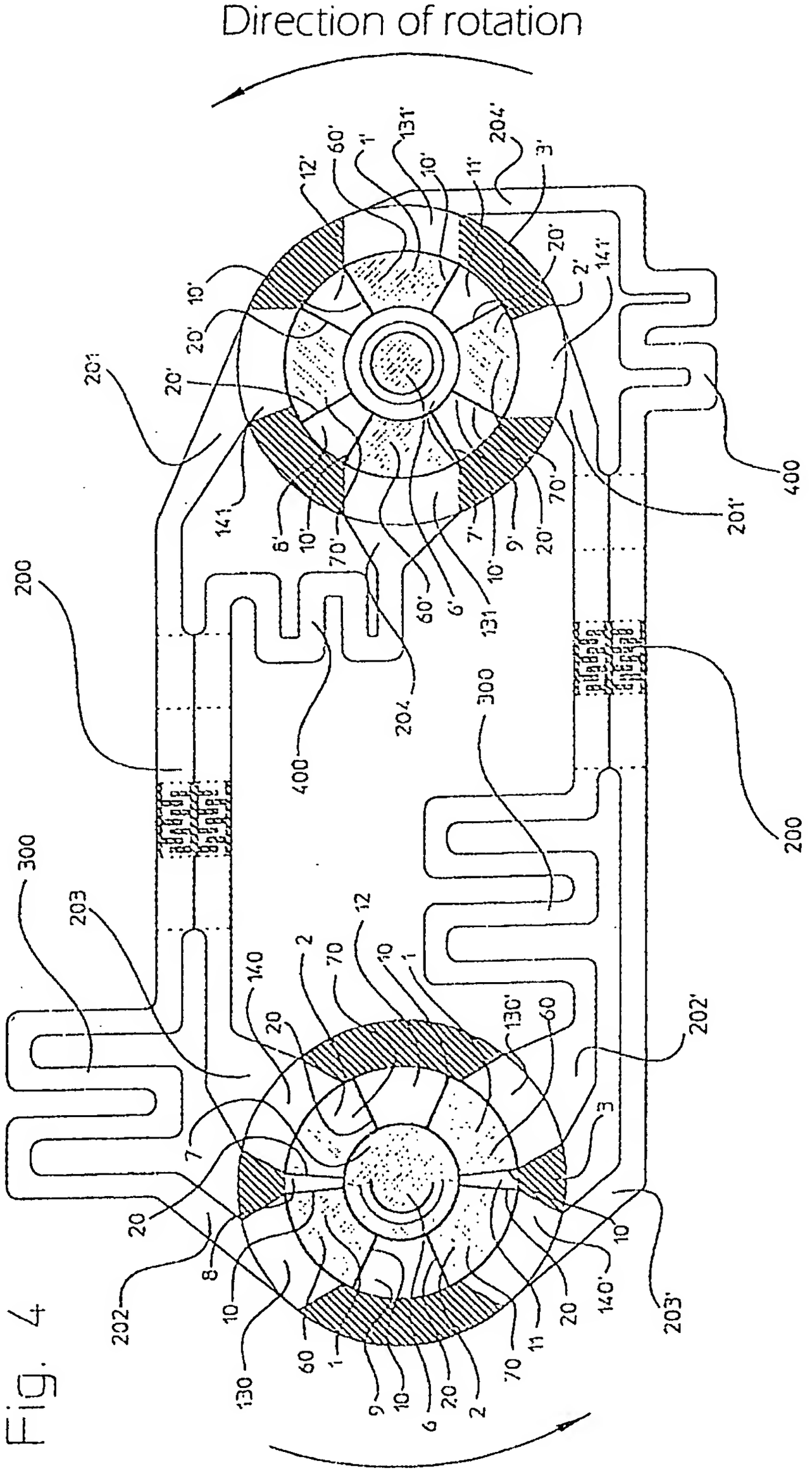

Direction of rotation
12'
60'
1'
131'
10'
11'
204'
3'
20'
2'
141'
10'
20'
20'
201'
141'
8'
10'
70'
60'
6'
131
10'
7'
9'
20'
70'
201'
400
200
400
204
300
200
300
203
140
2
70
12
10
1
20
130'
60
202'
7
20
8
10
60
1
130
9
10
6
20
2
70
11
20
140'
10
3
1
203'
Direction of rotation

Fig. 4

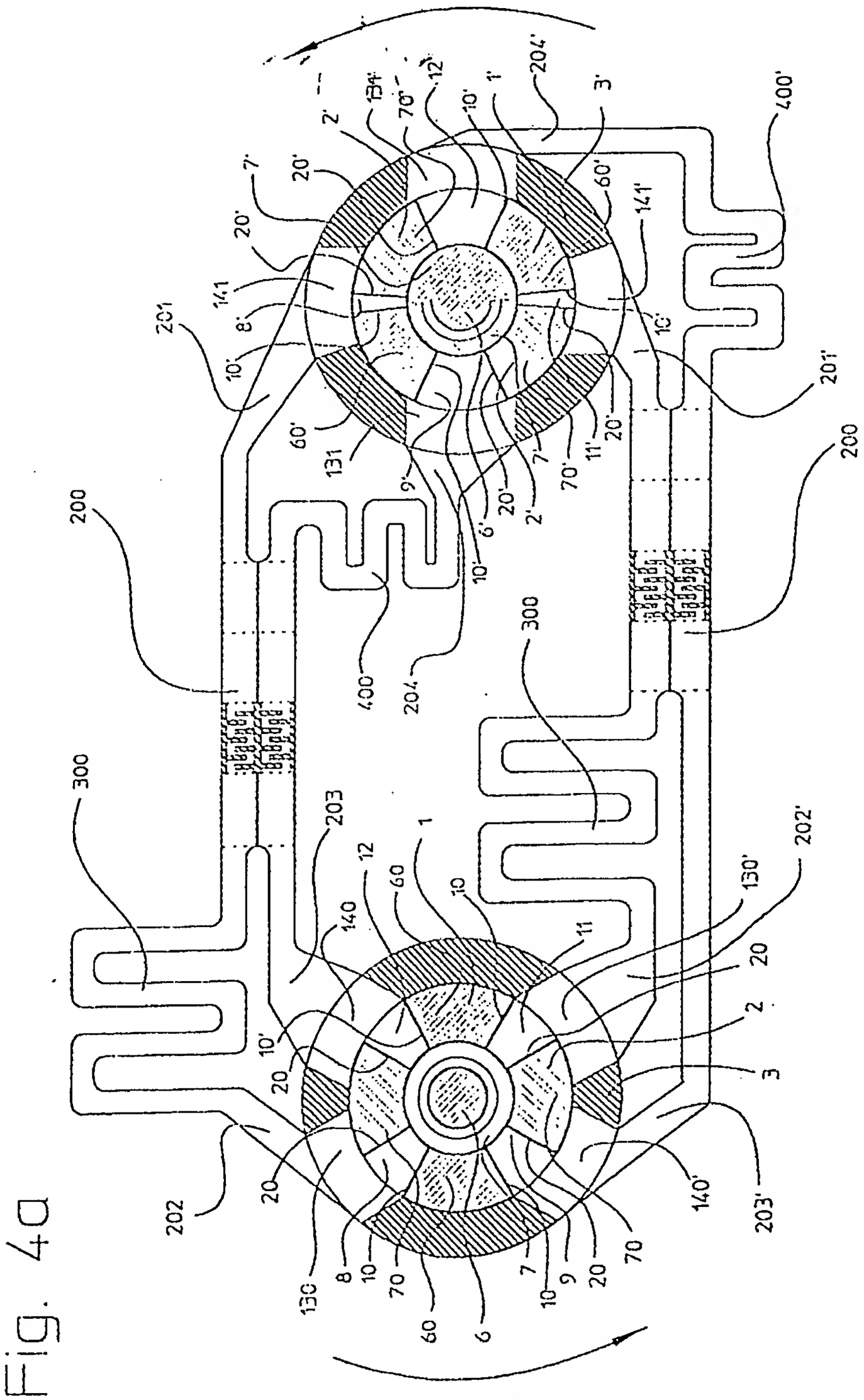

Direction of rotation
400'
204'
3'
1'
10'
12'
70'
134'
2'
7'
20'
20'
60'
141'
141
8'
201
10'
60'
131
9'
6'
20'
2'
70'
11'
20'
10'
201'
200
400
204
10'
300
200
203
1
12
60
10
140
11
130'
202'
20
2
3
10'
20
202
20
140'
203'
130
8
10
70
60
6
7
10
9
20
70
Direction of rotation

Fig. 4a

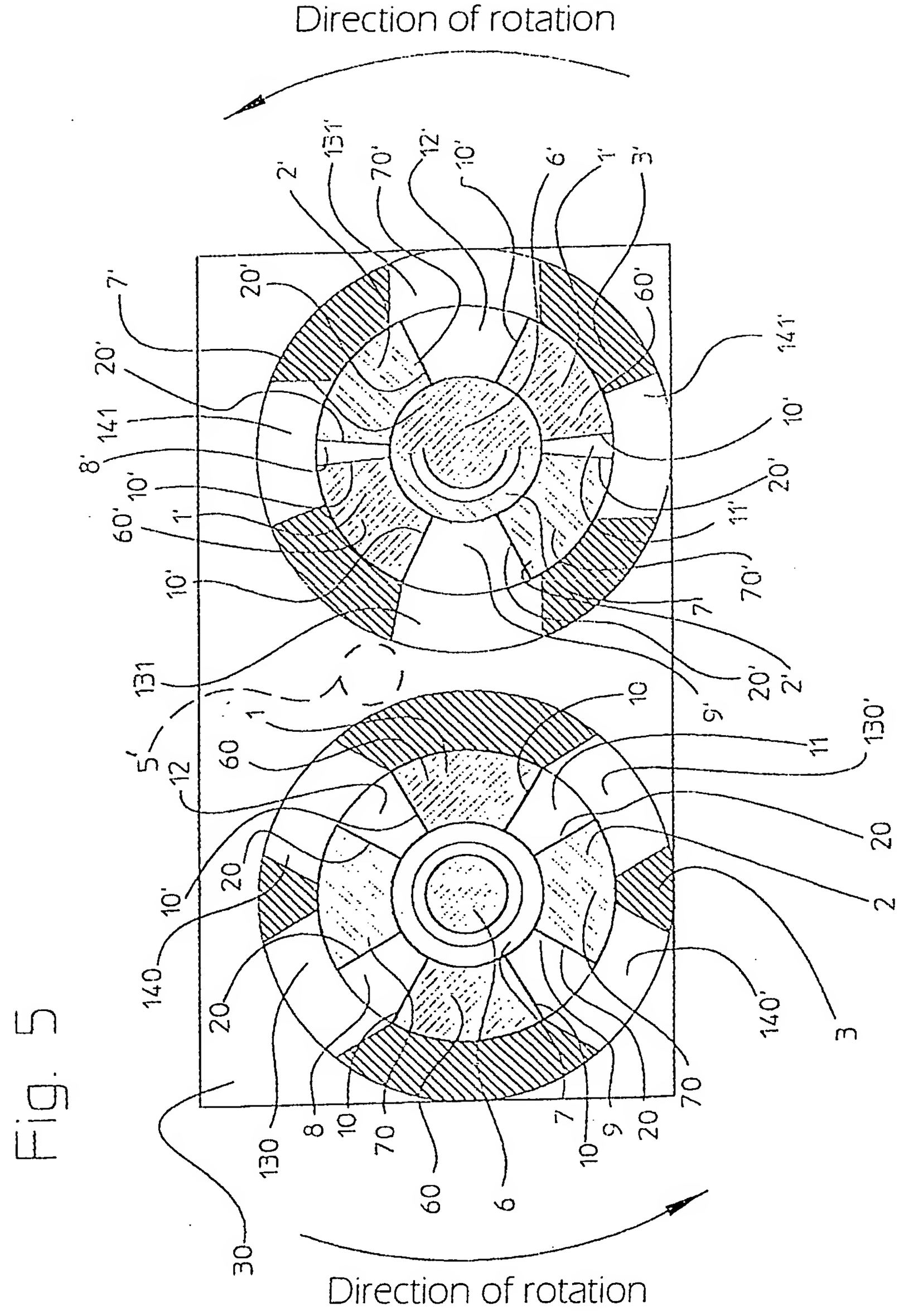
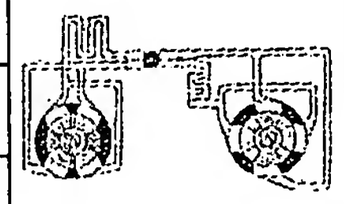
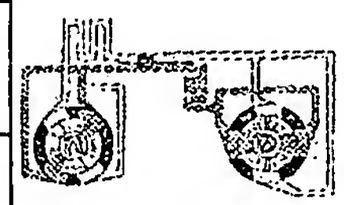
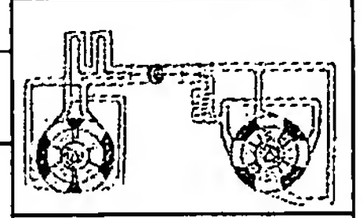
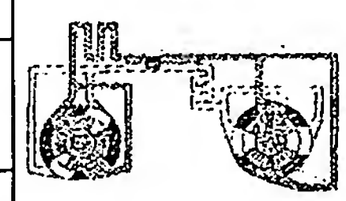
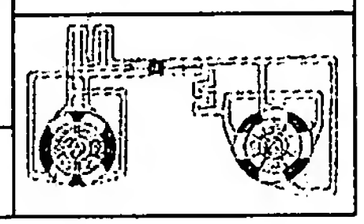

Direction of rotation
2'
151'
70'
12'
10'
6'
1'
3'
7'
20'
60'
20'
141
8'
10'
60'
1'
10'
141'
10'
20'
11'
70'
7'
20'
2'
131
5'
1
60
12
10'
20
140
20
10
5'
11
130'
20
2
140'
3
130
8
10
70
60
6
7
10
9
20
70
30
Direction of rotation

Fig. 5

Fig. 6

reg. = regenerator
cyl. = cylinder
WG = working gas

Work cycle	State	Gas path	Cham-ber	Total volume	Pressure	Ports	Temperature	Cyl. displacements: Cyl. 100	Cyl. displacements: Cyl. 101	Working gas
0	1	Expanded WG is in cylinder 3	1	large	low	0	medium	large	medium	
	1-2	WG is forced through reg. and cooler (from cyl. 3 to cyl. 3′		remains constant	decreases	↓ 140 131	isochoric temperature drop	decreases	increases	
1	2	Half of expanded WG is in cyl. 3 and half in cyl. 3′	1 and 2	large	very low	↓ 140 131	low	medium	large	
	2-3	All of WG is forced into cyl. 3′ and pre-compressed		decreases	increases	↓ 140 131	adiabolic temperature increase	decreases	decreases	
2	3	WG is in cyl. 3′ (precompressed)	2	small	medium	0	medium	0	medium	
	3-4	WG flows from cyl. 3′ to cyl. 3 (through reg. and heater)		remains constant	increases	↓ 141 130	isochoric temperature increase	increases	decreases	
3	4	Pipe connection 141-130 is maintained. WG forces both cylinder displacements apart	3	small	maximum pressure	141 130	maximum temperature	medium	0	
	4-1	WG expanded, most thereof remaining in cyl. 3 => work stroke		increases	decreases	↓ 140 130 ↑ / 130	adiabolic temperature drop	increases	increases	
4	1	Expanded WG is in chamber 1 (cyl. 3)	1	large	Low	0	medium	large	medium	

Attachments for the table

Attachment 1

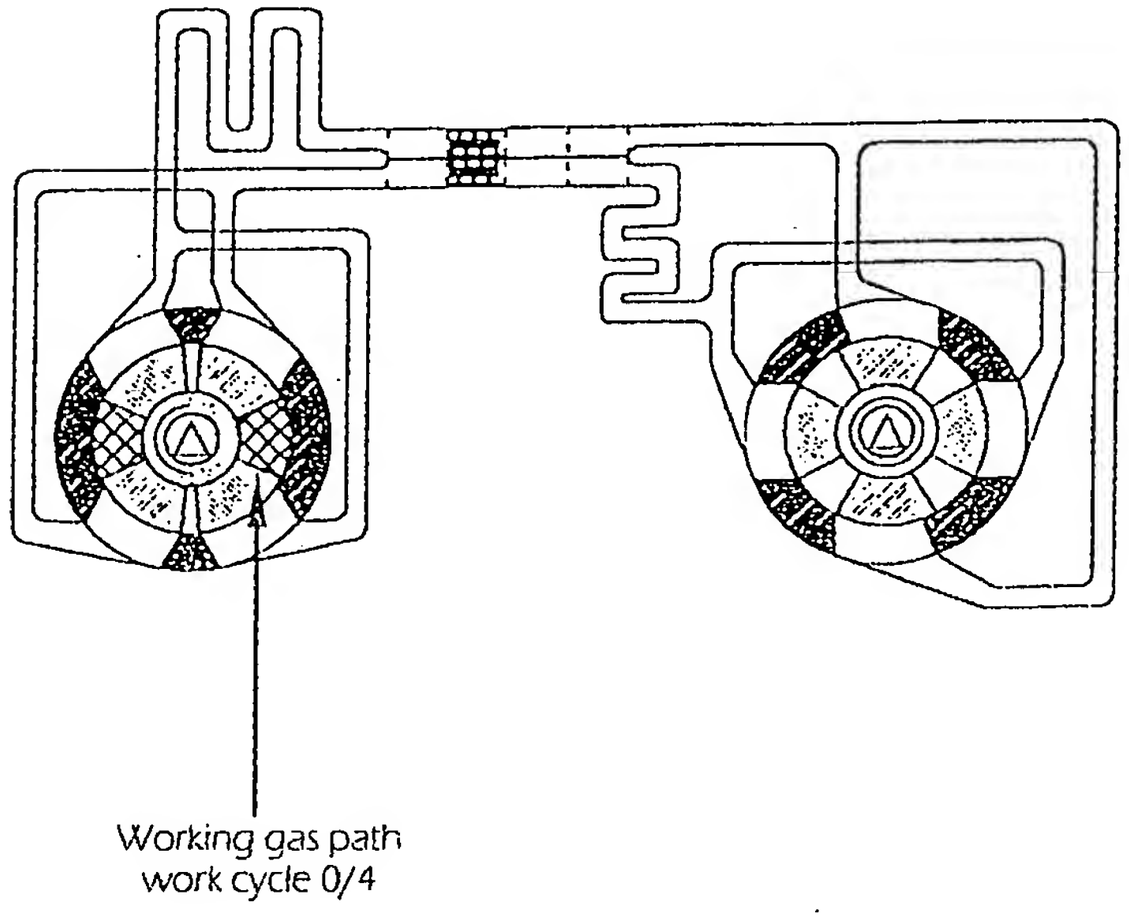


Fig. 7

Attachment 2

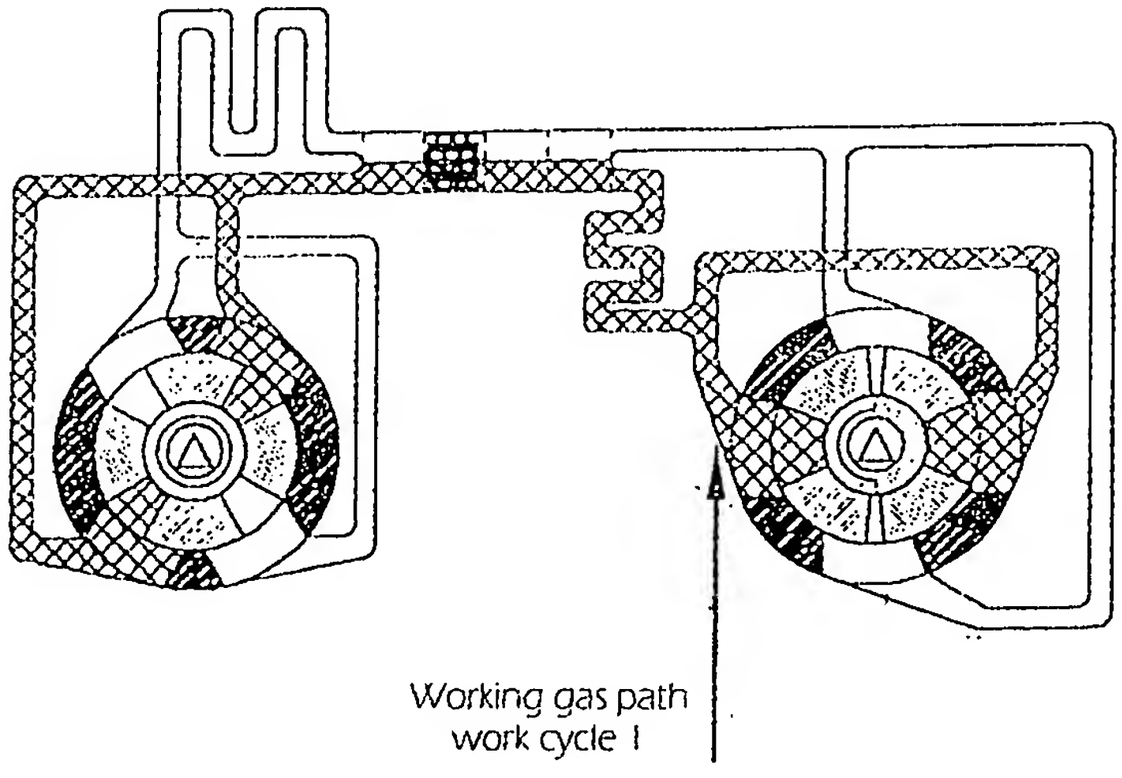


Fig.8

Attachment 3

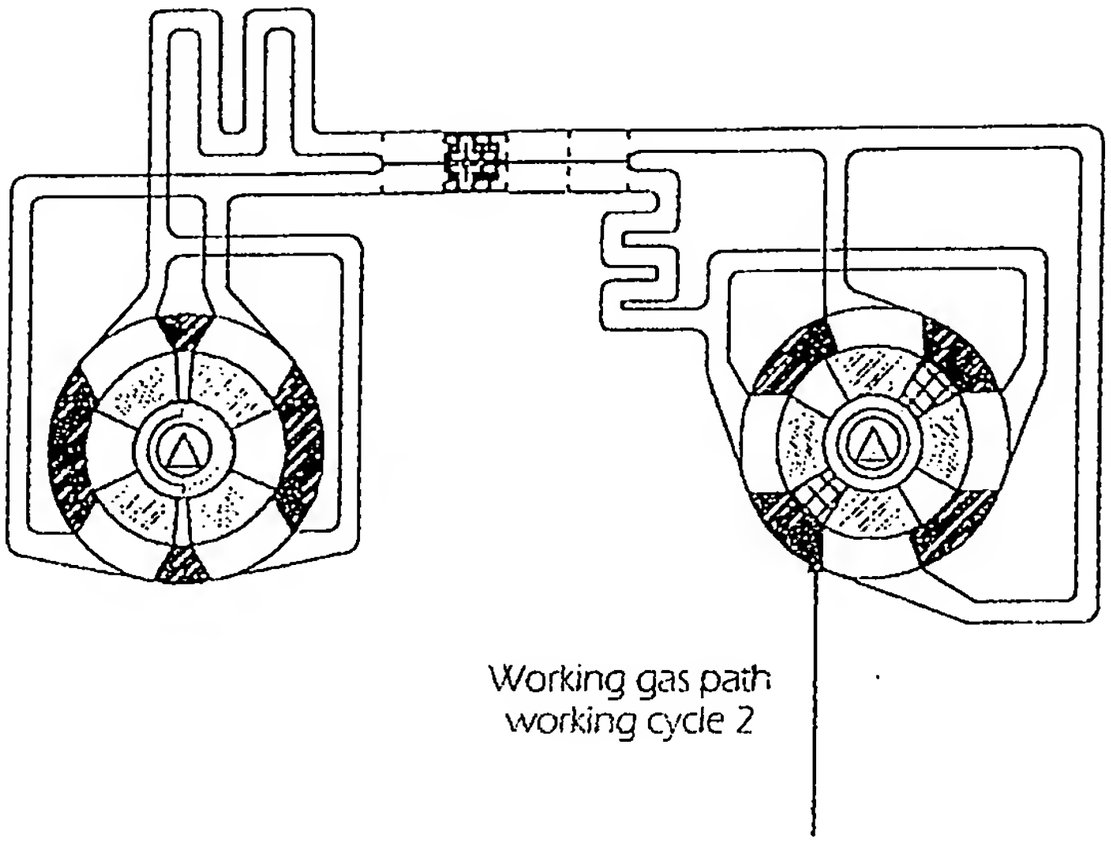


Fig. 9

Attachment 4

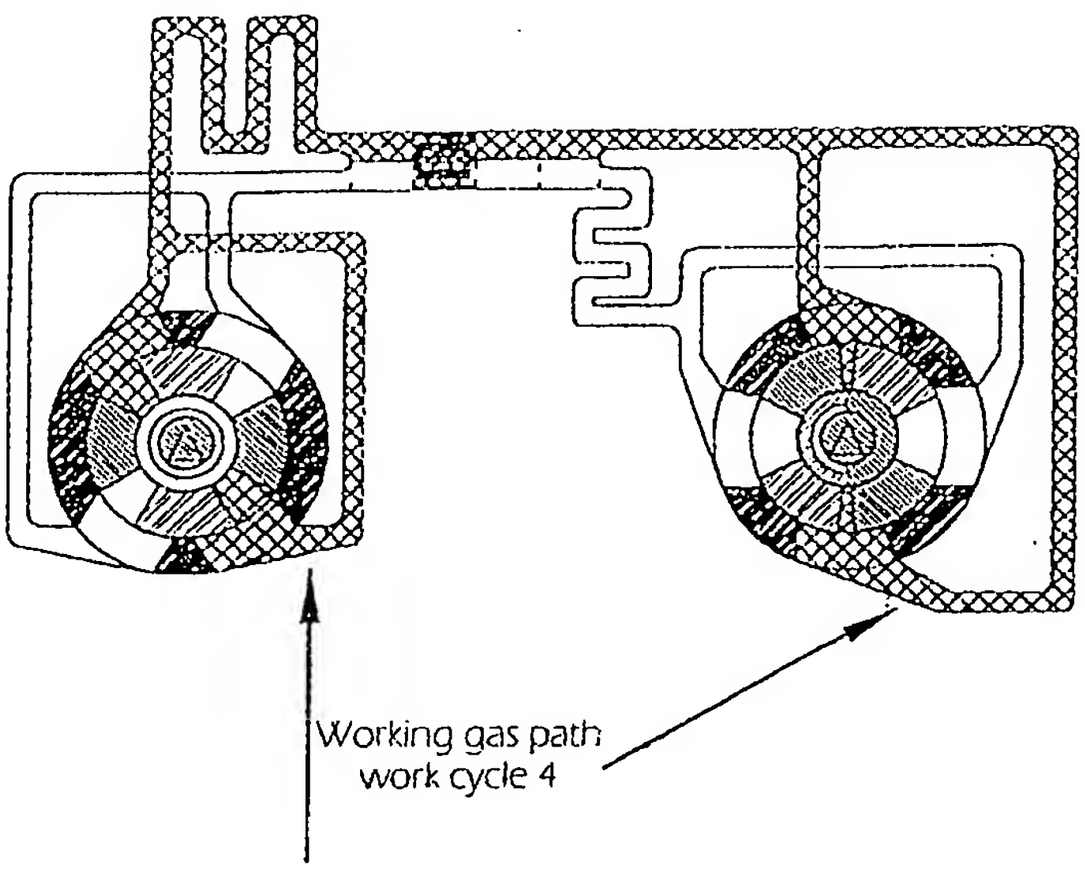


Fig. 10

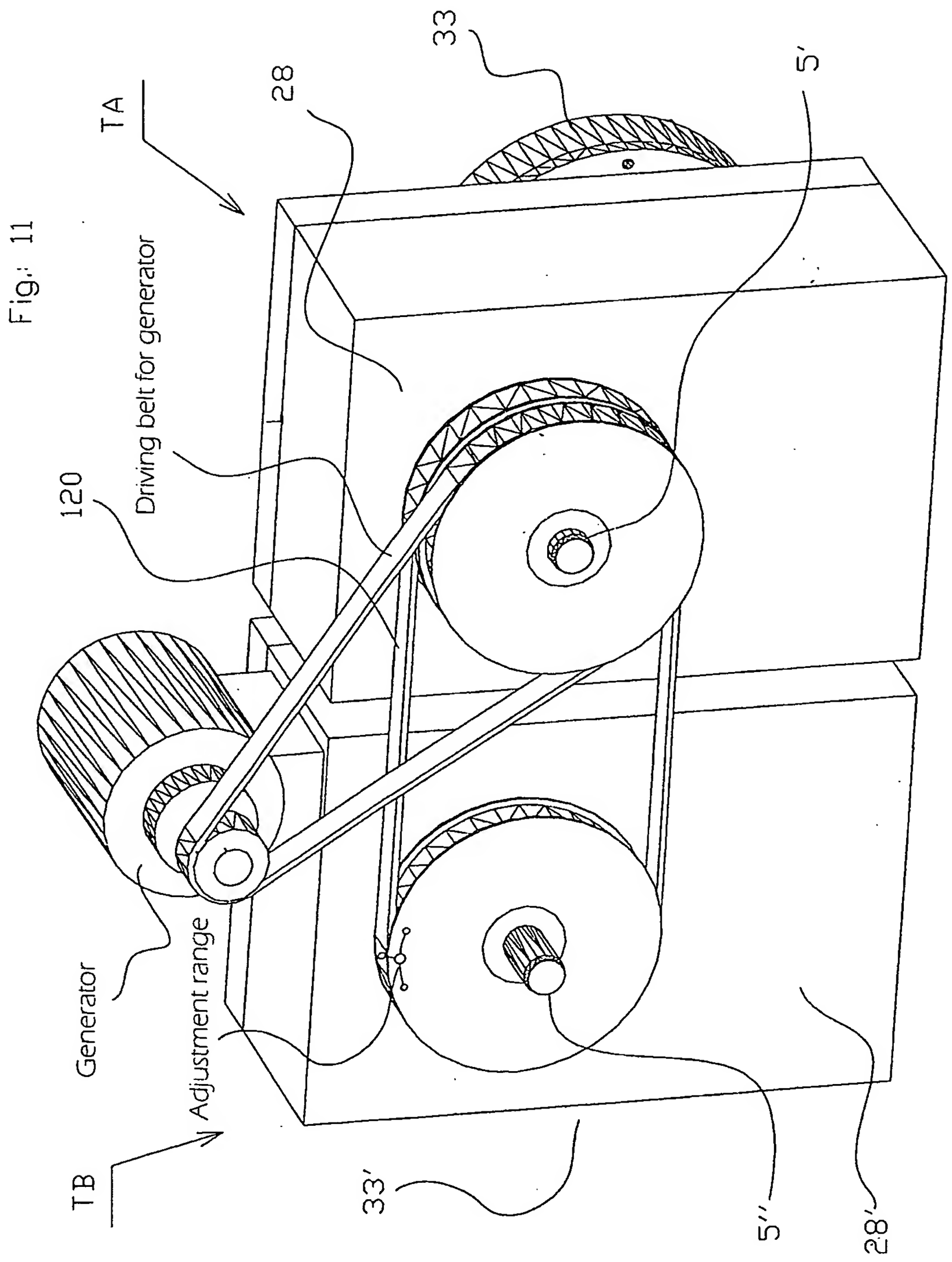

33
28
5'
TA
Driving belt for generator
120
Generator
Adjustment range
TB
33'
5''
28'

Fig.: 11

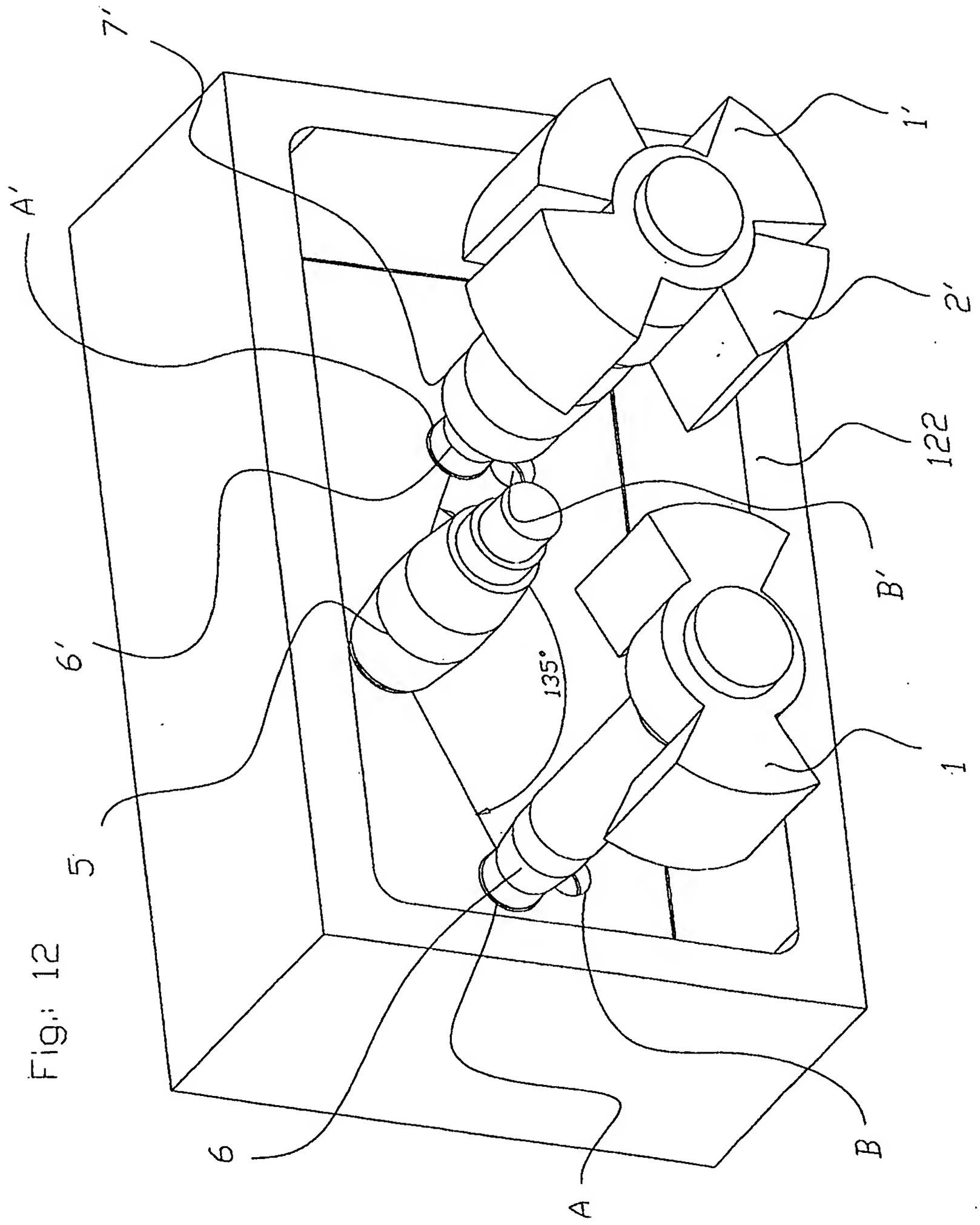
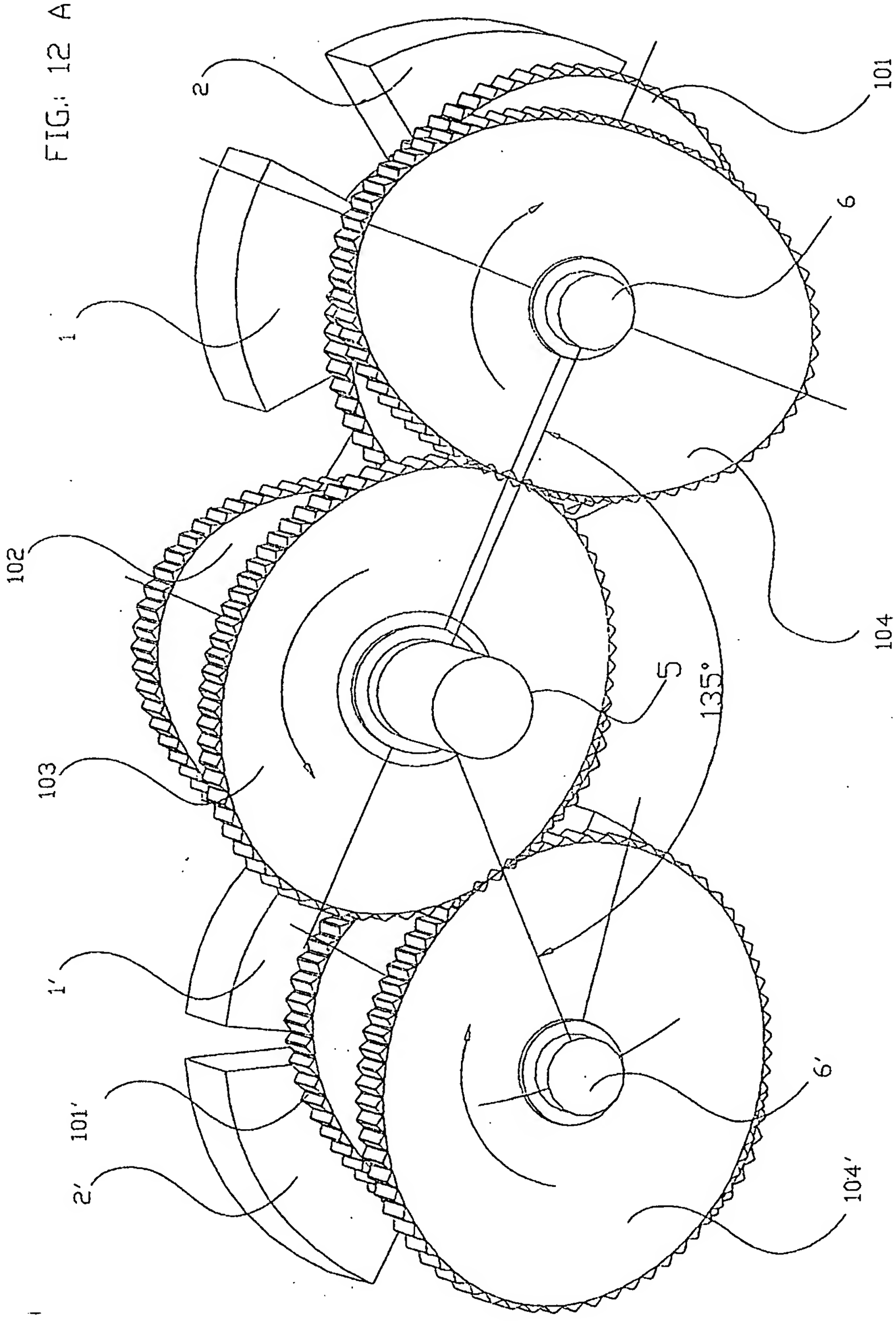


Fig. 12

FIG. 12 A



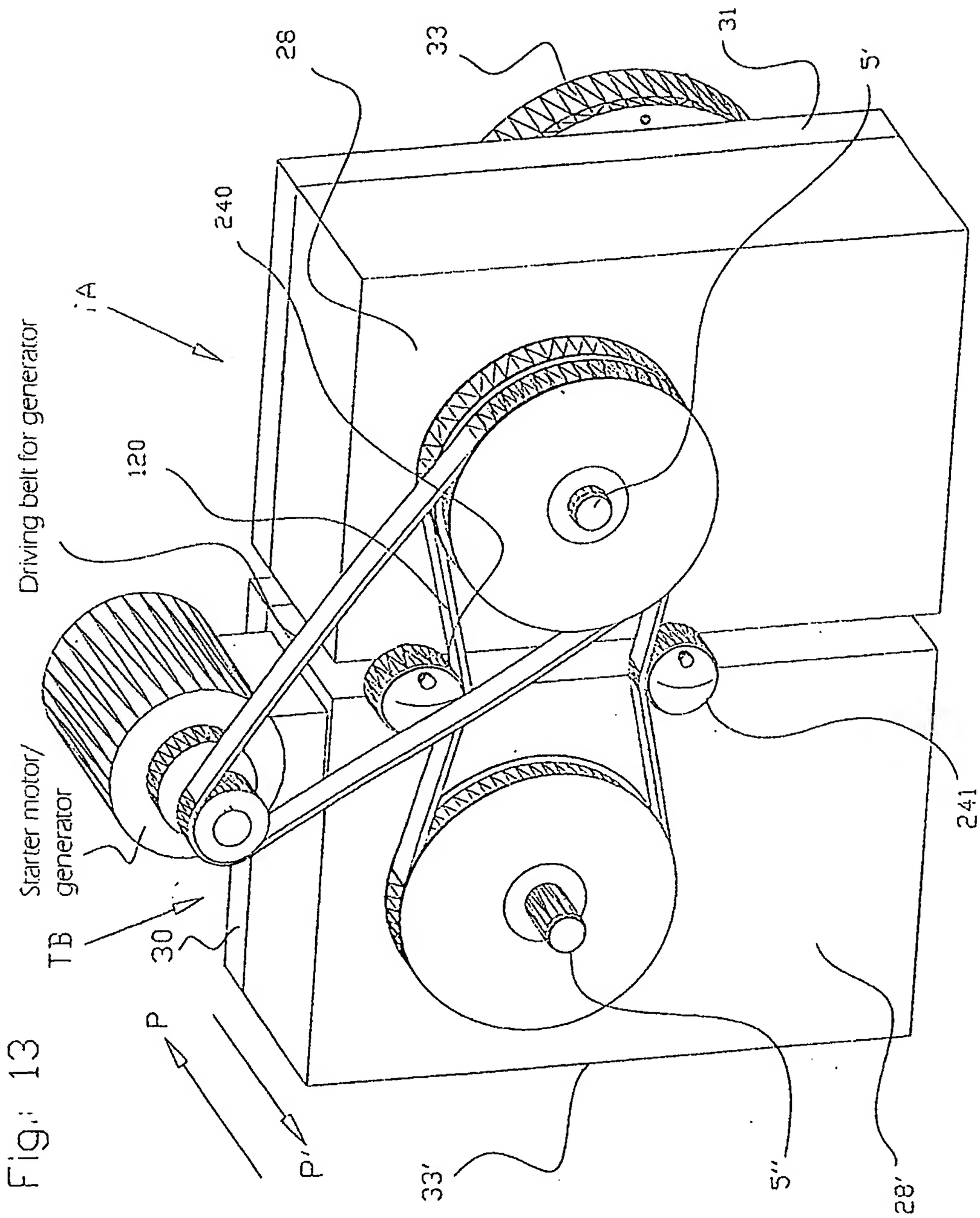

28
33
31
5'
240
A
Driving belt for generator
120
Starter motor/
generator
TB
30
P
P'
33'
5''
28'
241

Fig. 13

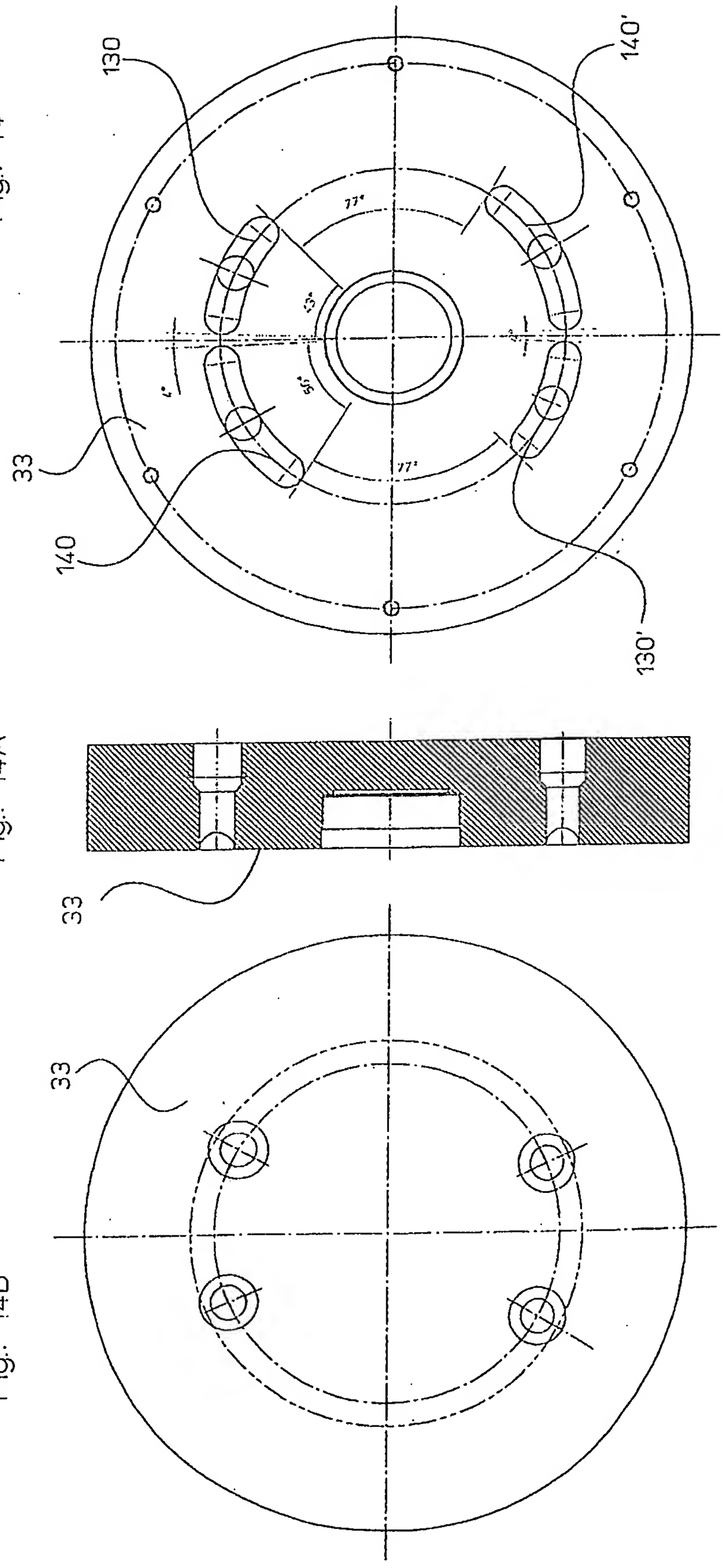


Fig.: 14

Fig.: 14A

Fig.: 14B

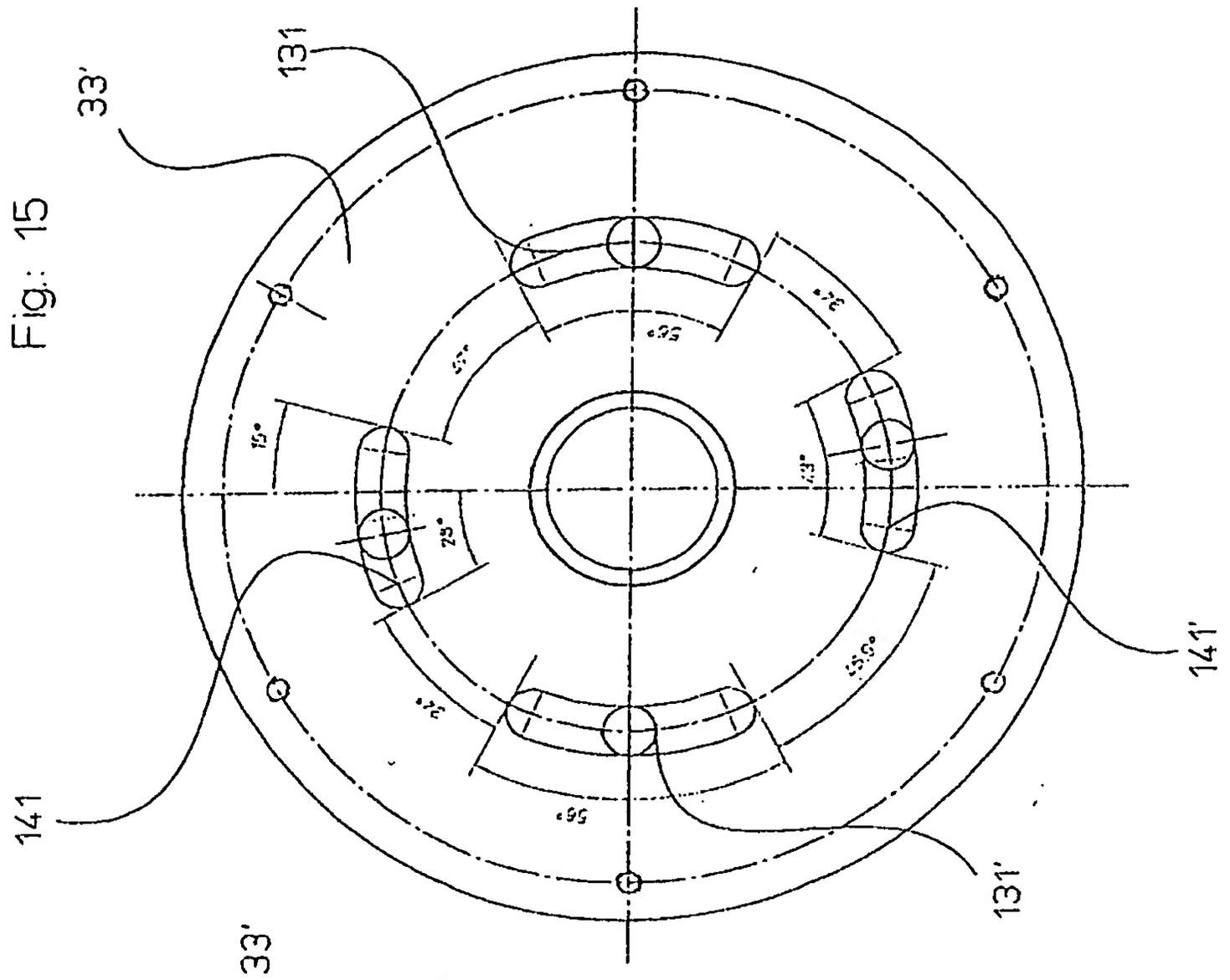


Fig.: 15

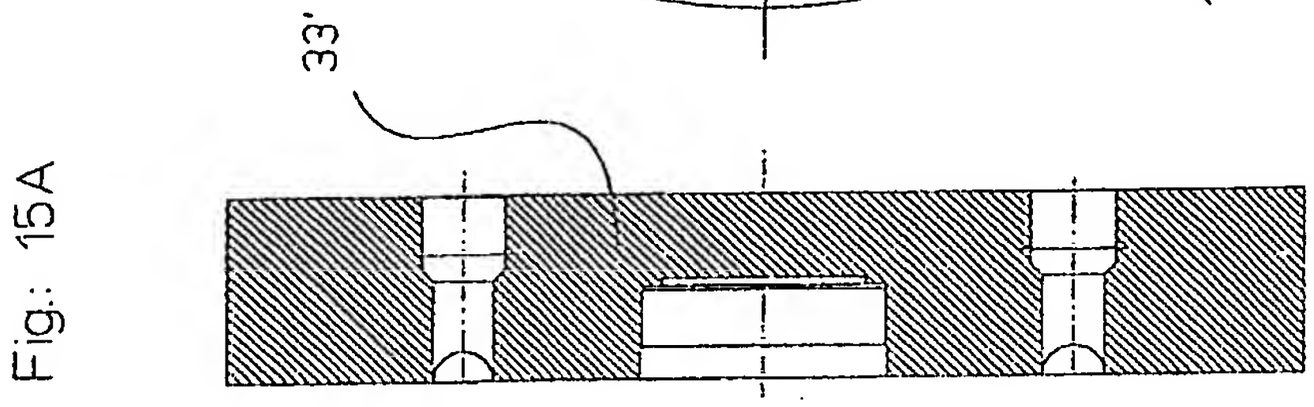


Fig.: 15A

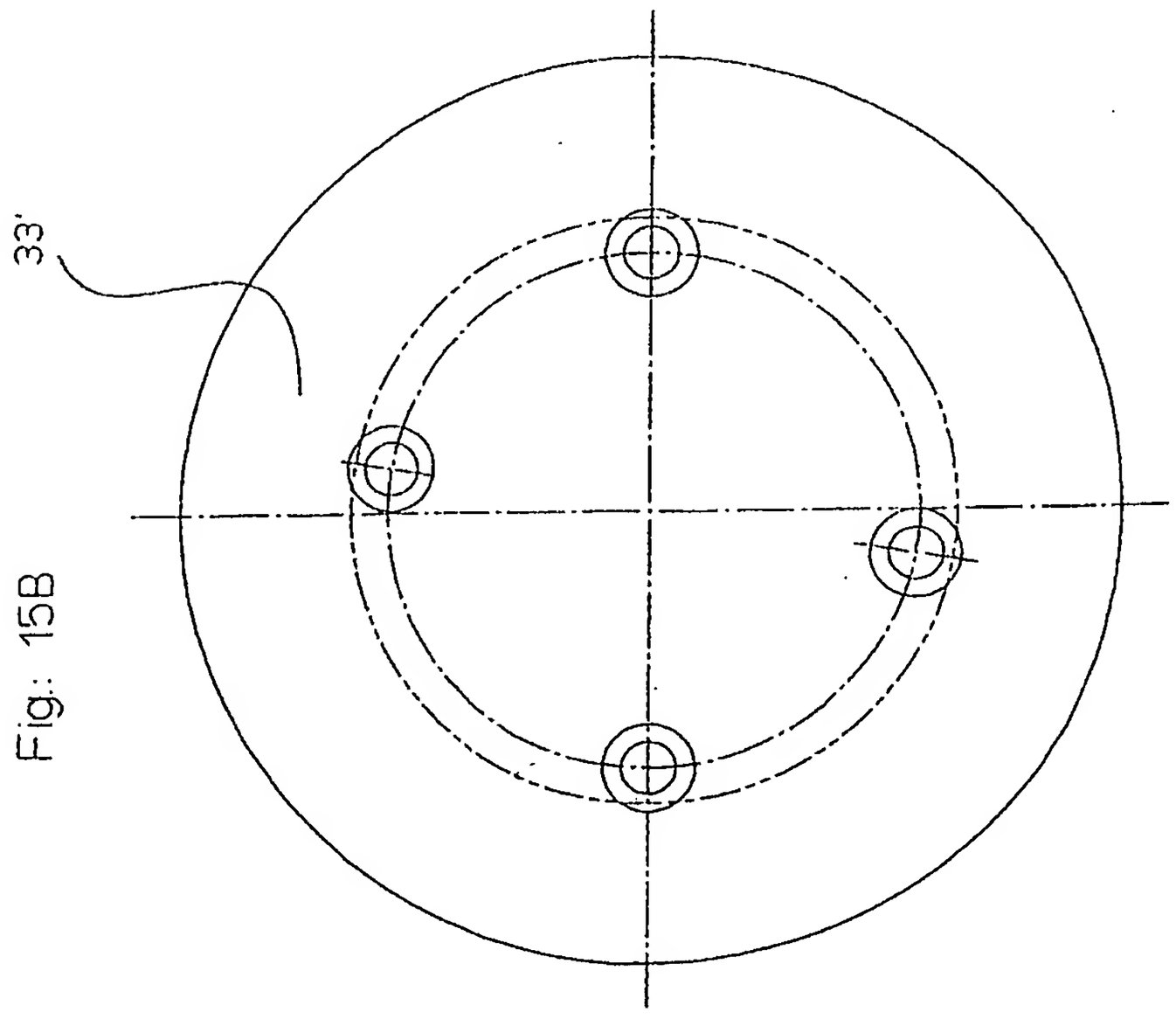


Fig.: 15B

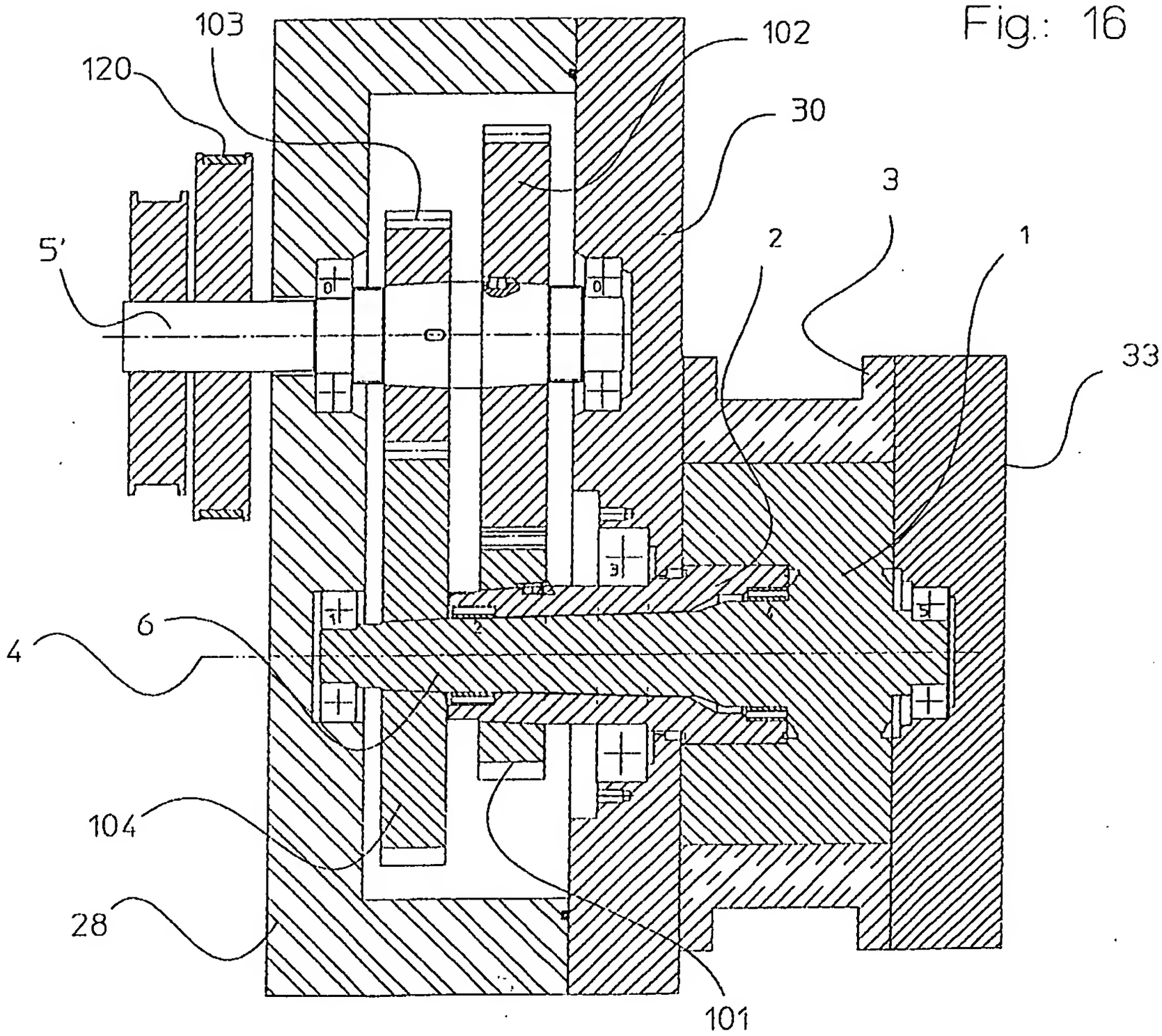


Fig.: 16

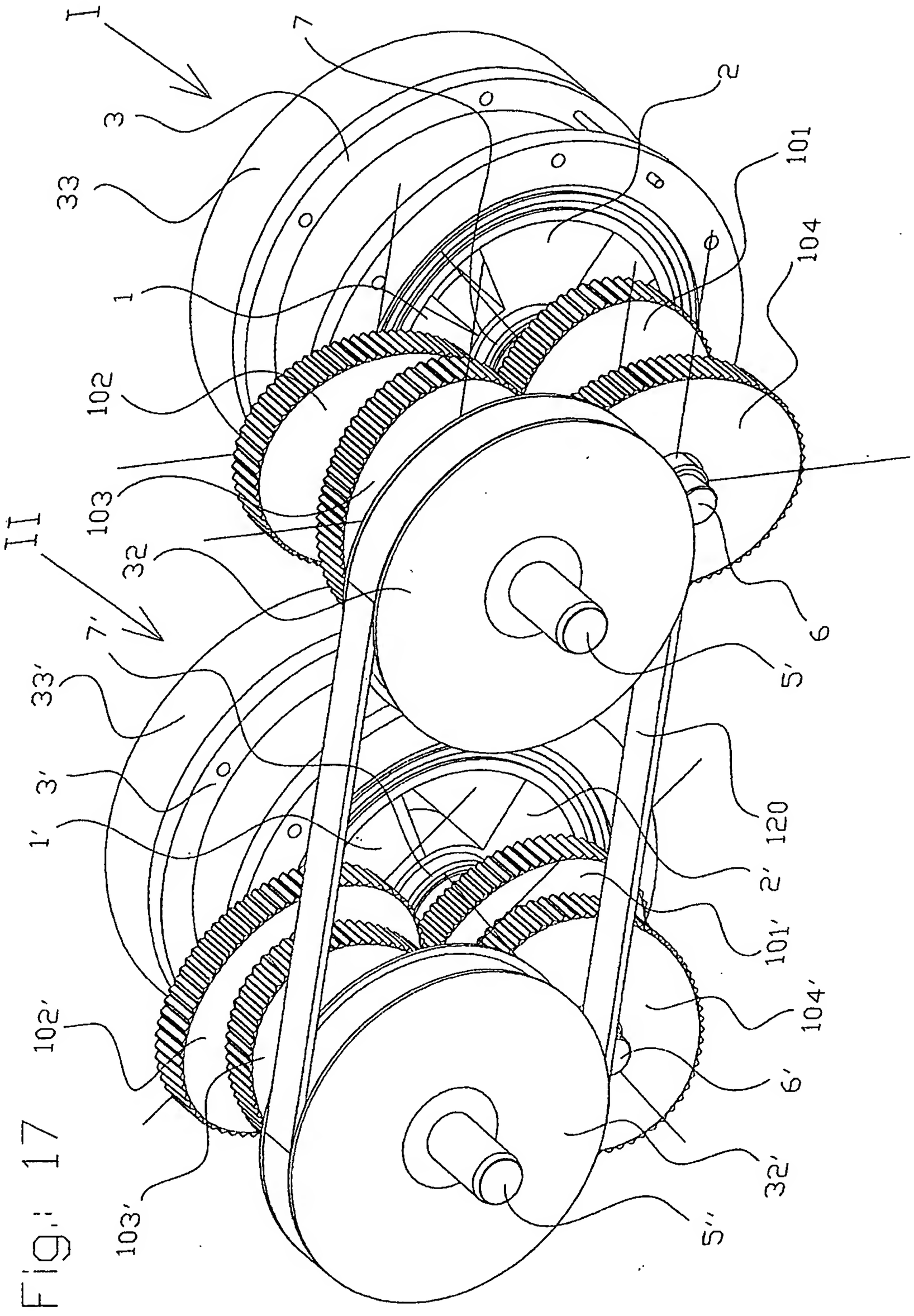

I
7
3
33
2
101
1
102
103
II
32
7'
33'
3'
1'
102'
103'
5'
6
120
2'
101'
104'
6'
32'
5''
104

Fig. 17

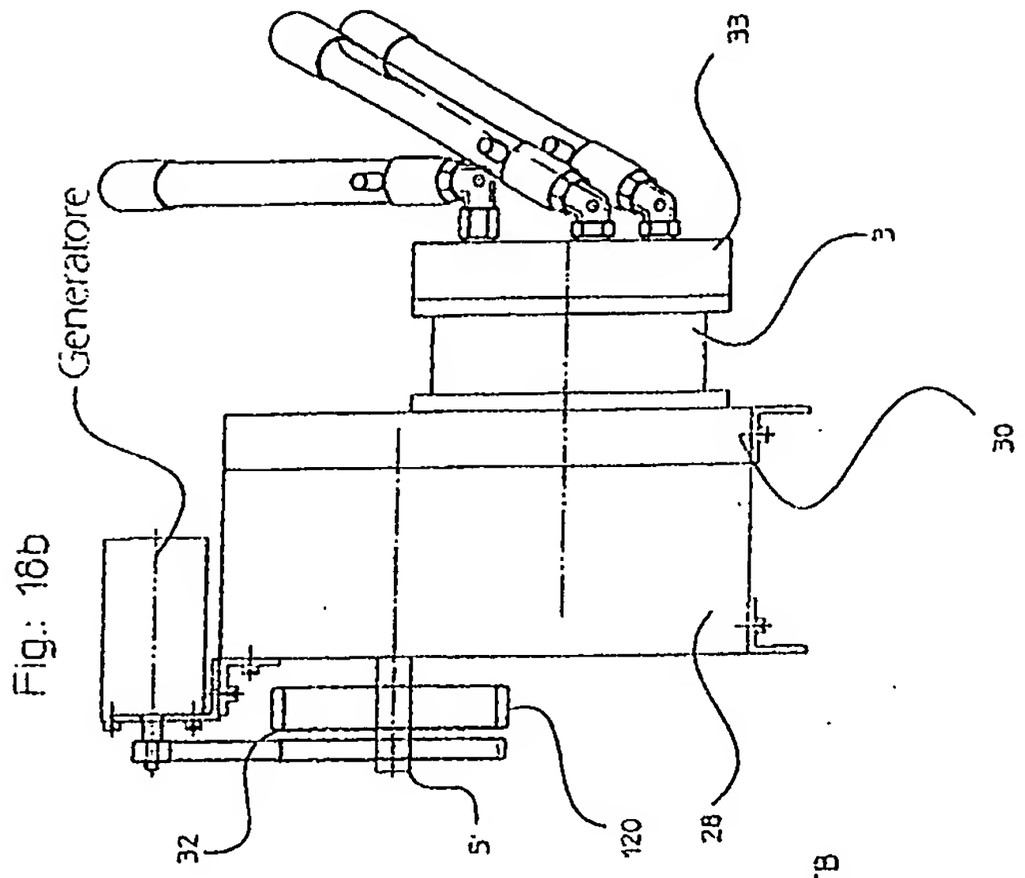


Fig.: 18b

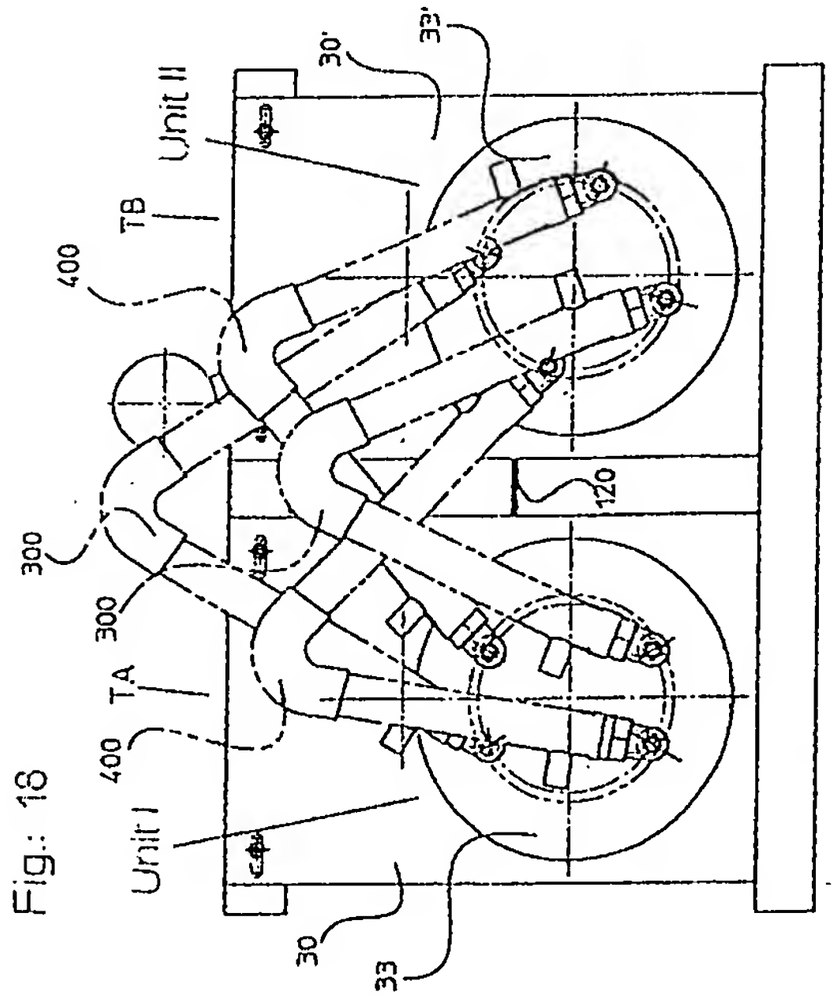


Fig.: 18

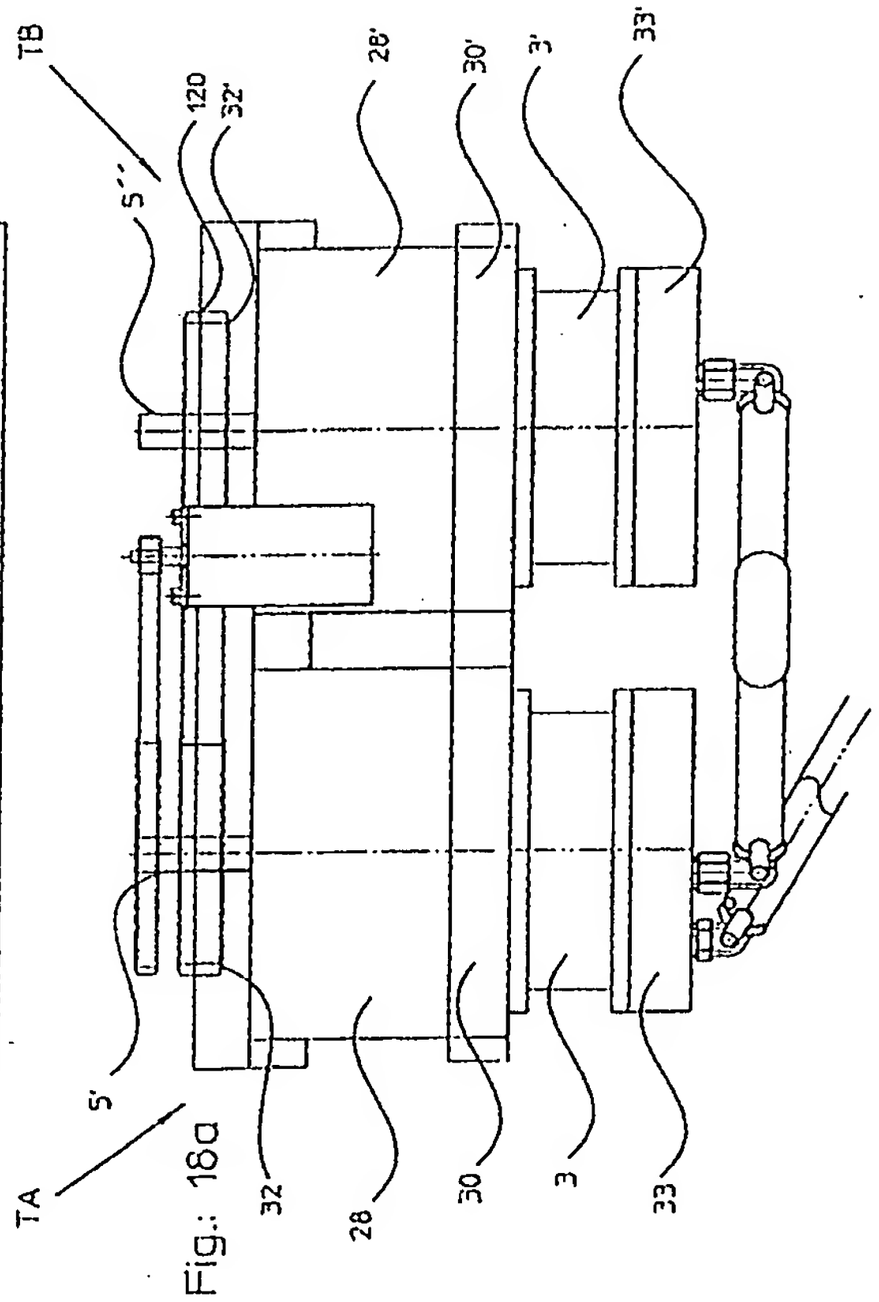


Fig.: 18a

Fig.: 20
Unit I

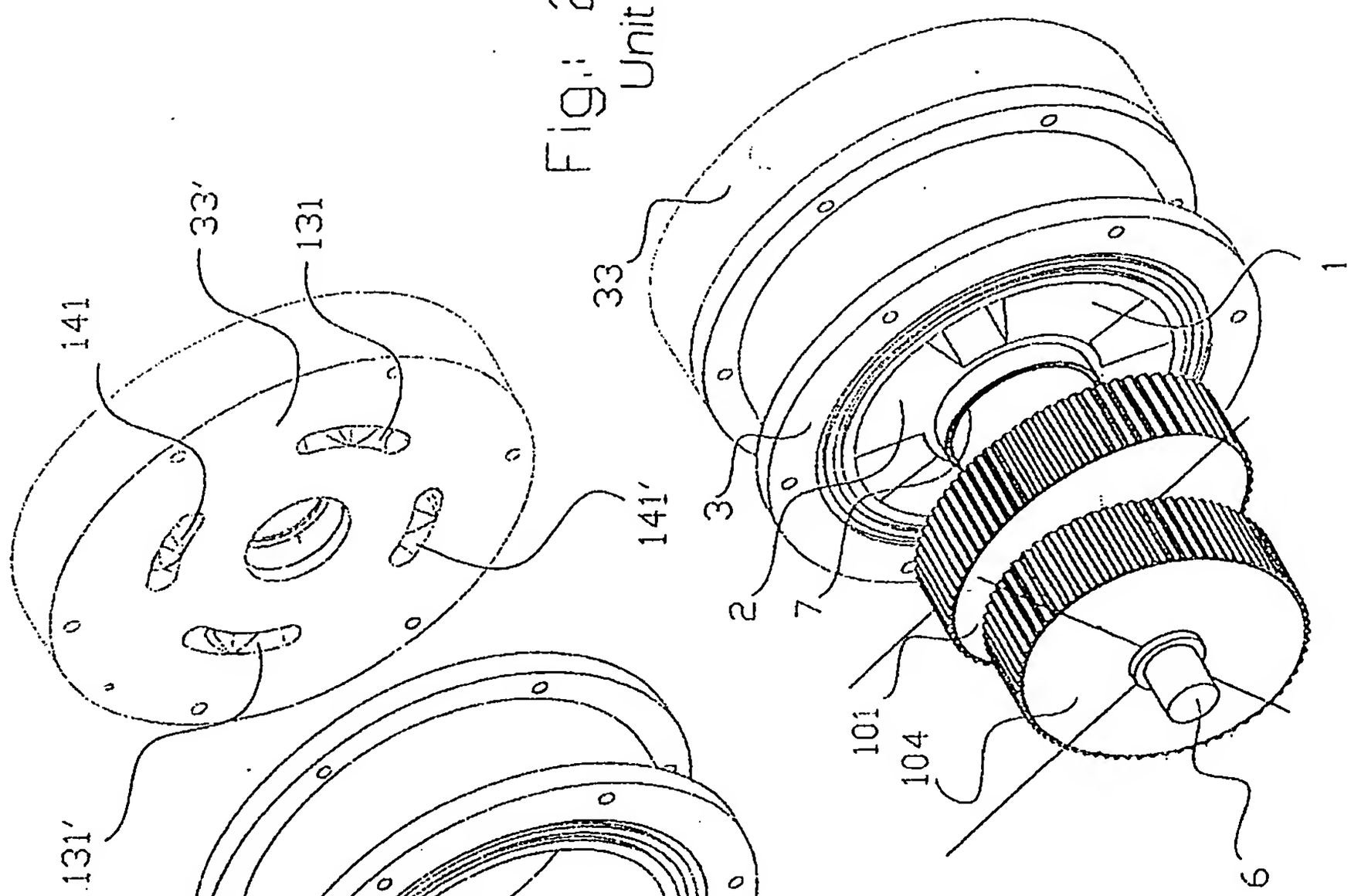


Fig.: 19
Unit II